Laborator si seminar
Programare in Java si software matematic

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Constructors

What is a constructor?

- initializes an object when it is created

- has the same name as its class

- syntactically is similar to a method

- have no explicit return type.

Java automatically provides a **default constructor** that initializes all member variables to zero. If you define your **own constructor**, the default constructor is no longer used.

Constructors

Java allows two types of constructors

- No argument Constructors

- Parameterized Constructors

Let's play with constructors

```java
package lab6;

public class NoArgument {
    int num;
    NoArgument(){
        num = 100;
    }

}
```

```java
package lab6;

public class Exercise1 {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        NoArgument o1 = new NoArgument();
        Parametrized o2 = new Parametrized (10);
        System.out.println(o1.num + " " + o2.num);
    }

}
```

```java
package lab6;

public class Parametrized {
    int num;
    Parametrized (int i){
        num=i;
    }

}
```

Java I/O Standard Streams

The java.io package contains nearly every class you might ever need to perform input and output (I/O) in Java

All the programming languages provide support for standard I/O where the user's program can take input from a keyboard and then produce an output on the computer screen. Java provides the following three standard streams −

•**Standard Input** − This is used to feed the data to user's program and usually a keyboard is used as standard input stream and represented as **System.in**.

•**Standard Output** − This is used to output the data produced by the user's program and usually a computer screen is used for standard output stream and represented as **System.out**.

•**Standard Error** − This is used to output the error data produced by the user's program and usually a computer screen is used for standard error stream and represented as **System.err**.

System.out is not new for us

Let's play a bit with **System.in** 😊

Standard Stream System.in

```java
1  package lab6;
2
3  import java.io.*;
4
5  public class ReadConsole {
6
7      public static void main(String[] args) throws IOException {
8          // Citesc de la tastatura caractere si le afisez pana cand se tasteaza caracterul q
9          InputStreamReader cin = null;
10         try {
11             cin = new InputStreamReader (System.in);
12             System.out.println("Enter characters, 'q' to quit.");
13             char c;
14             do {
15                 c = (char) cin.read();
16                 System.out.print(c);
17             } while(c != 'q');
18         }finally {
19             if (cin != null) {
20                 cin.close();
21             }
22         }
23
24     }
25
26 }
```

```
Enter characters, 'q' to quit.
aaaaaas
aaaaaas
sssssssdas
sssssssdas
popojjshahsbanskm
popojjshahsbanskm
jhajhjhjhjhjq jaxsjbxja
jhajhjhjhjhjq
```

Homework

Please write a new app in Java that fills an array of chars from the keyboard. The size of the array must be read also from the keyboard.